Construction of pEGFP-ChEgTrp as DNA model for multi-epitope vaccine against Echinococcus granulosus

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Abstract

Background: Infection with *Echinococcus granulosus* causes hydatidosis in human and ruminants. With regards to the high prevalence of hydatidosis in Iran, dealing with this disease is important in terms of public health.

Objective: The aim of this study was to construct pEGFP-ChEgTrp as DNA model for multi-epitope vaccine against *Echinococcus granulosus*

Methods: This experimental study was conducted in the Razi Vaccine & Serum Research Institute, Karaj in 2013. Initially, epitopes stimulating the host immune response were predicted by IEDB Database and the coding sequences were made. The sequences were amplified by PCR. The PCR products were cloned into pEGFP-N_1 vector after digestion with *Xho*I restriction enzyme. The bacteria containing recombinant plasmid were evaluated using Colony PCR, agarose gel electrophoresis and sequencing methods.

Findings: Four peptides with 10 linear epitopes were predicted in EgTrp antigen. The nucleotide sequence coding ChEgTrp was amplified by PCR using specific primers and a 270 bp fragment was obtained. This fragment was cloned into pEGFP-N_1 vector and the recombinant plasmid was confirmed by Colony PCR and agarose gel electrophoresis. For final confirmation, the recombinant plasmid was sequenced and the pEGFP-ChEgTrp was constructed.

Conclusion: The ChEgTrp was successfully cloned into the pEGFP-N_1 vector and this plasmid can be used to design DNA vaccines.

Keywords: Echinococcosis, Tropomyosin, Molecular Cloning, DNA Vaccines

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